

PATENT SPECIFICATION

Inventor: CAMILLO GAGGIA

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COMPLETE SPECIFICATION

Improvements in or relating to Cocks for Coffee Machines

We, BREVETTI GAGGIA SOCIETA A RESPONSABILITA LIMITATA, of Via Cadolini 24, Milan, Italy, an Italian Company, do hereby declare the invention, for which we pray that a patent

may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
This invention relates to cocks for so-called "express" coffee machines of the kind in which a cylinder connected to a boiler contains a piston provided with lifting means adapted to lift it against the action of a spring, thereby permitting water to enter the piston, said piston being lowered by the action of said spring to eject the water through the bottom of the cylinder which is constituted by a removable filter adapted to contain the coffee powder.

In the known machines manually operable means are provided to raise the piston to its upper position in order to permit the coffee powder contained in the filter to be permeated by water from the boiler. As soon as said raising means is released, the piston begins its down stroke under the action of the spring, thereby applying pressure to the water and producing the infusion. These known arrangements have the inconvenience of not allowing the water—when the piston is in its upper position—to permeate the coffee powder for a sufficient length of time. To obtain a good infusion, the barman ought to keep the piston lifted for a certain time, but considerable effort is required to hold the piston in such position against the pressure of the spring.

It is an object of the present invention to obviate this disadvantage, and to this end there is provided a cock for "express" coffee machines comprising a vertical cylinder provided with a connection to a boiler and containing a piston provided with means adapted to lift it against the action of a spring so as to allow water to pass through the piston into a removable filter located at the bottom of the cylinder and adapted to receive the coffee powder, the piston being returned to its

lowered position by the spring thereby to force the water through the filter, wherein means is provided for automatically locking the lifting means in the actuated position thereof so as to prevent return of the piston to its lower position, manually operable means being provided for disengaging said locking means when the piston is to be returned to its lowered position.

In our co-pending application No. 5276 of 1953 (Serial No. 728,017) there is described and claimed a cock for "express" coffee machines comprising in combination a vertical cylinder provided with a connection to a boiler, a piston slidable within said cylinder, a post secured axially within said piston, a stem extending centrally within said cylinder and connected to said post by coupling means permitting universal angular movement between the axes of said stem and post, a sleeve engaging said stem and extending within the piston co-axially about said stem, a filter removably supported at the lower end of said cylinder and providing a space for coffee powder, a coil spring extending within said piston and engaging said sleeve thereby to urge the stem and piston in the direction of the filter, and means for raising the piston against the action of said spring to admit water from the boiler to the filter space, the spring applying pressure to the water entering said space when the piston raising means is released thereby to force said water through the filter.

The accompanying drawings show by way of example an embodiment of cock according to the invention. In the drawings:—

Figure 1 is a longitudinal section at elevation of the cock; and

Figure 2 is a plan view, partly in section, of Figure 1.

In Figure 1 the cylinder 1, connected to the boiler by means of a flange 2 formed with a bore 3, is provided with a piston 4 slidable therein, the piston being connected by means of a pin 5 to a stem 6 that can be lifted by the rotation of a handle 7 in the

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anti-clockwise direction. The handle is rotatable about an axis 8 and is coupled to said stem 6 by means of a rack 9. A nut 10 and a locking nut 11 screwed on the upper end of said stem 6 and abutting against a head 12 allow for adjustment of the piston stroke.

Upward movement of the piston 4 compresses a spring 13 which returns the piston to its bottom position when the lifting handle 7 is released. A filter 14 adapted to receive coffee powder is removably connected to the lower end of the cylinder by a bayonet coupling.

Passages 15 provided in the piston register with ports 16 provided in a ring 17 when the piston 4 is at the upper limit of its stroke and permit water from the boiler to enter into a cavity 18, the pressure of the water in said cavity opening a check valve 19 against the pressure of a return spring 20, so that the water discharges on to a perforated spray plate 21 through which it passes to the filter 14. The construction described above corresponds to that disclosed in our aforesaid application No. 5276 of 1953 (Serial No. 728,017). In order to retain the piston for any required length of time in the raised position, there is provided a stop for the handle 7 constituted by a disc 22 rotatable with the handle about the axis 8 and provided with a recess 24 forming a tooth 23.

A pawl 25 is rotatably mounted on the head 12 about an axis 26 and the nose 27 of said pawl is normally held against the periphery of the disc 22. For this purpose there is provided on the inside face of the pawl a notch 28 (see also Figure 2) having a wedge cross-section shape which faces a hole 29 provided in the head 12. In said hole 29 there is housed a compression spring 30 and a ball 31, which latter is thus pressed against the pawl. The ball 31 tends to penetrate into the notch 28 and hence constantly urges the nose 27 of the pawl 25 against the disc 22.

A tongue 32 is fixed by screws 33 on the periphery of said disc 22. One end 34 of said tongue forms a projection overlying the end of the recess 24 opposite the tooth 23 while a tail 35 at the other end of the tongue is engageable with the nose of the pawl 25.

When the handle 7 is moved in the anti-clockwise direction to raise the piston 4 to a position in which the passages 15 are registered with the ports 16, the disc 22 then occupies a position in which the nose 27 of pawl 25 enters the recess 24 and locks the handle against reverse movement under the action of spring 13 by engaging tooth 23. In this position of the pawl the ball 31 has moved under the action of spring 30 into the deep end of notch 28. When sufficient time has elapsed for the water which has entered the filter to permeate the coffee powder, the pawl 25 is disengaged from the tooth 23 by rotating

the handle 7 through a further short distance in the anti-clockwise direction so that the end 34 of tongue 32 engages under the nose 27 of the pawl and rocks the latter in the clockwise direction out of the recess 24. The ball 31 is consequently moved out of the notch 28 into the hole 29 and the pawl relieved from the loading effect of the spring 30. The disc, handle and piston can now return to their initial positions under the action of spring 13, the piston applying pressure to the water in the filter to force it through the filter. A pin 36 limits the rotation of the pawl away from the disc. When the piston reaches the lower end of its stroke, the handle 7 and disc 22 are in the position shown in Figure 1 where the tail 35 of tongue 32 has engaged the tail of the pawl 25 and returned said pawl into contact with the disc. The ball 31 re-enters the notch 28 and the pawl is thus loaded in readiness for the next operation.

What we claim is:—

1. A cock for "express" coffee machines comprising a vertical cylinder provided with a connection to a boiler and containing a piston provided with means adapted to lift it against the action of a spring so as to allow water to pass through the piston into a removable filter located at the bottom of the cylinder and adapted to receive the coffee powder, the piston being returned to its lowered position by the spring thereby to force the water through the filter, wherein means is provided for automatically locking the lifting means in the actuated position thereof so as to prevent return of the piston to its lower position, manually operable means being provided for disengaging said locking means when the piston is to be returned to its lowered position.

2. A cock as claimed in claim 1, wherein the means for disengaging the locking means is controlled by operation of said lifting means.

3. A cock as claimed in claim 1 or 2, wherein said locking means is constituted by a pawl engageable with a toothed member associated with said lifting means.

4. A cock as claimed in claims 2 and 3, wherein the pawl is urged to engage the toothed member by a spring, the pawl being disengageable from said toothed member and being then relieved from the pressure of the spring by further actuation of the lifting means in the lifting direction.

5. A cock as claimed in claims 3 and 4, wherein the lifting means comprises a pivoted handle co-operating with a rack connected to the piston, said handle having co-axially secured thereto a disc formed with a recess presenting at one end a tooth engageable with the pawl, said disc having secured on its periphery a tongue one end of which overlies that end of said recess opposite said tooth.

- so as to engage under the nose of the pawl and retract it from the disc when the handle is further rotated in the lifting direction, and the other end of said tongue returning the
- 5 pawl into contact with the disc upon return of the handle to its inoperative position, the pawl being formed with a wedge-shaped recess which is normally engaged by a spring-loaded ball but which is disengaged from said ball
- 10 when the pawl is retracted from the disc, a pin being provided for limiting the movement of the pawl in the retracted direction.
6. A cock for "express" coffee machines substantially as hereinbefore described with reference to the accompanying drawings. 15

For the Applicants
MATTHEWS, HADDAN & CO.,
Chartered Patent Agents,
31/32, Bedford Street, Strand,
London, W.C.2.

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